



Navy Environmental Quality Fact Sheet



Do you treat wastewater containing AFFF or fuels, oil, and grease?

Would you like to improve this process in the following areas?

- **Meet environmental compliance regulations.** Reduce wastewater volume and its disposal cost. Meet discharge limits for wastewater contaminated with Aqueous Film Forming Foam (AFFF). Media area is wastewater.
- **Improve workers' safety and health.** No change to current operations.
- **Increase productivity.** No change to current operations.
- **Save money.** The Mobile Air-Sparged Hydrocyclone (ASH) System reduces initial equipment, installation, and operating costs compared to conventional AFFF or FOG treatment systems.



Mobile Air-Sparged Hydrocyclone System

The ASH system is an innovative process developed to economically and effectively remove AFFF, as well as FOG, from wastewater. Personnel at DOD installations use AFFF to suppress fires of combustible liquid fuels resulting from aviation and shipboard accidents, or battle-induced damages. AFFF is also widely used in the hangar sprinkler systems and DOD fire fighting training facilities. AFFF is not considered hazardous to humans, but can kill bacterial cultures in wastewater treatment facilities (WWTFs). Many WWTFs prohibit the discharge of AFFF laden wastewater into their plants unless the AFFF concentration is pretreated to less than 50 ppm. Results of recent demonstration tests indicate that the mobile ASH system could remove 98% of AFFF, and meet the wastewater pretreatment requirements. The cost of removing AFFF using the ASH system ranges from 50 cents to \$1 per 1,000 gallons of wastewater. The ASH technology has been demonstrated at Naval Station Mayport, Florida and Marine Corps Base Camp Pendleton, CA.

How can you achieve these improvements?

Use the Mobile Air-Sparged Hydrocyclone System to remove AFFF and FOG from the wastewater stream prior to discharge to Waste Water Treatment Facilities (WWTFs).

How does this system work?

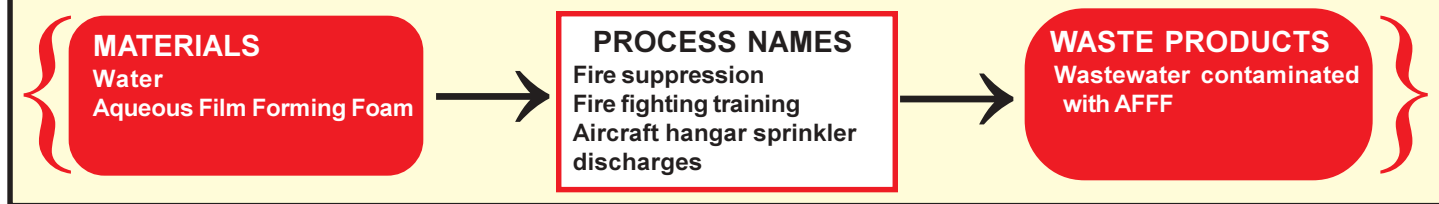
The ASH system combines chemical coagulation, hydro-cyclone, and air flotation principles into one unit to remove AFFF, as well as fuels, oil, and grease and total suspended solids from wastewater.

How will this system save you money?

Avoids the costs associated with disposal of large quantity of AFFF laden wastewater which is prohibited from discharge into WWTFs. Significantly lower costs to treat AFFF contaminated wastewater compared to conventional methods.



Typical Process Flow Diagram



How can this technology eliminate or reduce pollution?

The ASH technology can be used to process the AFFF contaminated wastewater and reduce the AFFF concentration to a level of less than 50 ppm. Implementation will result in the following pollution reduction:

- Reduction in volume of wastewater contaminated with AFFF discharged to WWTFs.

Which installations can benefit most from this technology?

This technology can be used at DOD installations that generate wastewater contaminated with AFFF, as well as fuels, oils and grease and suspended solids. Typical installations include:

- Naval air stations
- Naval shipyards
- DOD fire fighting training facilities
- Naval aviation depots
- Support equipment maintenance shops
- Aircraft intermediate maintenance depots

How can this technology reduce regulatory compliance concerns?

The ASH technology removes AFFF and FOG from wastewater that is traditionally discharged to WWTFs. Implementation of this technology will result in the following regulatory compliance benefits:

- Helps activities meet pretreatment standards for discharges of wastewater into a WWTF (40 CFR 403).
- Helps activities meet the pretreatment and effluent limits of their NPDES permit (40 CFR 122).
- Eliminates notices of violation (NOVs) by reducing the potential for treatment plant upsets.



Achieving Environmental Compliance Through Pollution Prevention

Every day the Navy faces the challenge of operating and maintaining the fleet while complying with environmental regulations. This burden can be reduced by using pollution prevention technologies and methods to reduce compliance requirements. This fact sheet is one in a series designed to encourage activities to use pollution prevention technologies and methods. The overall goal of this series is to promote sustained environmental compliance at the lowest life-cycle cost.

For additional information, contact:

Naval Facilities Engineering Service Center (NFESC) User Data Package for ASH System, expected to be completed May 2002.

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